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ARGUMENT FOR PATENTABILITYStatus of Claims

Claims 1-32 were originally filed in this application. Claims 1-20 have been previously withdrawn from consideration pursuant to a restriction requirement. Accordingly, the pending claims under consideration are Claims 21-32. Claim 21 has been amended with this response. Claim 32 has been cancelled.

Applicants respectfully submit such amendments with the present Request for Continued Examination to afford the Office ample opportunity to consider such amendments or to conduct an additional search, if necessary.

Rejection under 35 USC 103

Claims 21-32 are rejected under 35 USC 103(a) as being unpatentable over US Patent 5,521,273 to YILGÖR et al. In view of US Patent 5,981,407 to MATSUMOTO et al.

The rejection contained in the Office Action is essentially as provided below:

YILGÖR teaches a process for coating a fabric with two different urethane polymeric compositions which, together, form a composite coating that reads on Applicant's claimed "combination of a first urethane polymer and a second urethane polymer." The fabric may be woven, nonwoven, or knit. The coating may further contain flame retardants. Each of the urethane compositions have an elongation at break of 500-600% or greater. The teaching renders obvious Applicant's claimed urethane "having an elongation at break of less than 500%", since a *prima facie* case of obviousness exists where the claimed ranges and the prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. Here, it is the Examiner's position that an elongation at break of 499.9% is both less than 500% and close enough to 500% that one of ordinary skill in the art would have expected them to have the same properties. YILGÖR fails to teach that the ratio

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of the first urethane polymer to the second urethane polymer is between 20:1 and about 5:1 on a solids basis.

MATSUMOTO et al. teach a flame retardant fabric comprising a halogen-containing polyester fiber. The halogen-containing fiber may comprise a phosphorous compound, such as tris(2,3-dichloropropyl) phosphate.

Since YILGÖR and MATSUMOTO are from the same field of endeavor (i.e., flame retardant fabrics), the purpose disclosed by MATSUMOTO would have been recognized in the pertinent art of YILGÖR.

It would have been obvious to have made the article of YILGÖR with the flame retardant cloth of MATSUMOTO, motivated by the desire to make the article flame retardant.

The Office Action also suggests that the clarity of Applicant's polymeric coating, the add-on levels of the coating, the ability of the coating to pass the NFPA Small Scale 701 Vertical Flame Test (1989), and the hand of the coated textile are also obvious, based on the teachings of YILGÖR and MATSUMOTO.

The YILGÖR reference teaches a water vapor-permeable, waterproof two layer coating system having a first breathable polyurethane adhesive and a second breathable polyurethaneurea top coat (see, for example, Col. 5, line 66 – Col. 6, line 2). Both the adhesive layer and the top coat material are described as having an elongation at break of "better than 500-600%" (Col. 6, lines 26-27). In fact, TABLE 1 of the reference indicates that each of the Example polymer layers has an elongation at break of greater than 725%. By using only such high elongation polymers, the reference fails to provide any teaching of a component that will provide firmness to the coating, a function provided by Applicant's low elongation polymer (see page 3, lines 21-22).

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The Office has suggested that the claim limitation of "a second urethane polymer having an elongation at break of less than 500%" is rendered obvious by the YILGÖR reference's teaching of materials with an elongation "better than 500-600%." Applicant respectfully disagrees with the Office's interpretation on this point. The phrase "better than" can only be interpreted to mean "greater than", especially in light of the Examples in the '273 patent.

Moreover, the properties achieved by a combination of a first polymer with an elongation greater than 500% (the "high elongation polymer") and a second polymer with an elongation less than 500% (the "low elongation polymer") are, in fact, not identical to the properties of two high elongation polymers (such as taught by YILGÖR). Applicant's specification (page 6, lines 14-18) describe the problems associated with using only high elongation polymers (those including higher add-on levels to achieve the desired stiffness and decreased likelihood of meeting flammability requirements at such add-on levels):

Efforts to use only a high elongation polymer improved the fabric's ability to resist mark-off. However, dry add-on levels of a high elongation polymer are necessarily much higher to obtain the desired hand (stiffness) in the finished fabric. Dry add-on levels of as much as 15% or more, while meeting the specifications for hand, are less likely to meet flammability requirements.

YILGÖR also teaches that "films of the adhesive and the top coat materials, both, have excellent elastomeric properties and as a result excellent stretchability and recovery" (Col. 6, lines 24-26). YILGÖR refers to the top coat materials providing "very soft and dry touch" (Col. 6, line 42), to top coats formed of "soft segments linked together with a diisocyanate" (Col. 10, line 39), and to using siloxane to "provide softer touch and good

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surface properties" (Col. 11, line 44). It is clear that the YILGÖR reference is directed to a soft, elastomeric coating that imparts flexibility to the coated textile substrate. Nothing whatsoever in the reference teaches the use of a combination of polymers having different elongation to produce a coating that imparts stiffness, or firm hand, to the coated textile substrate, as is presently claimed by Applicant.

In contrast, Applicant's disclosure teaches the combination of two different urethanes in the form of a single layer of polymer finish on a flame retardant fabric. Specifically contemplated is the combination of a high elongation polyurethane and a low elongation polyurethane. The coating combination forms a single layer of polymers on the fabric surface. Applicant respectfully reiterates that the YILGÖR reference entirely fails to teach or suggest the use of two different urethane polymers combined in a single layer, teaching only the use of individual polymer layers (which, even when laminated together, retain their separate properties).

Applicant's single layer is formed of polymers of differing elongation percentages, which when combined provide the desired properties of stiffness, clarity, and mark-off reduction. Because the YILGÖR reference fails to teach or suggest the inclusion of a polymer having an elongation less than 500% as claimed by Applicant, the reference then inherently fails to teach the properties provided by Applicant's materials. Failing to teach such materials (specifically, the use of two different urethane polymers in a single coating layer to provide a fabric with a stiff hand), the YILGÖR reference does not provide a product that would render obvious the fabric product claimed by Applicant.

Applicant concurs that the YILGÖR reference is silent as to the use of flame retardant fabrics. For that teaching, the Office turns to the MATSUMOTO reference.

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From Applicant's understanding, MATSUMOTO is directed to a flame retardant fabric made from three different fiber types: a halogen-containing fiber, a polyvinyl alcohol fiber, and a common polyester fiber. The fabric has excellent heat resistance and is suitable for transfer printing. The halogen-containing fiber provides flame retardance to the fabric. MATSUMOTO does not teach or suggest the use of polymer coatings in conjunction with their flame retardant fabric.

The Office suggests that the YILGÖR reference is directed to the same field of endeavor as the MATSUMOTO reference, that being to the area of fabrics in general.

MPEP 2142 states, in part:

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986).

In this instance, the Office has expanded the field of endeavor of the references to the generic term "fabrics" and has suggested that the MATSUMOTO reference provides motivation for combining the references, because MATSUMOTO teaches fabrics with flame retardancy and excellent processability.

MPEP 2143.01 states, in part:

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art."

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Applicant submits that the combination of YILGÖR and MATSUMOTO fails to satisfy this standard. Although the references are directed to the same broad field of endeavor, there is no logical reason to make the combination suggested by the Office Action. YILGÖR teaches a two-layer coating that may include flame retardant additives. MATSUMOTO teaches a fabric that is flame retardant due to chosen fiber types and which does not include the use of a polymer coating. Accordingly, there is no teaching, suggestion, or motivation to combine the teachings of these references, when the references themselves seek to impart flame retardant properties by two distinctly different methods (in YILGÖR's coating and in MATSUMOTO's fibers). When each reference individually provides a workable solution to the problem to be solved, Applicant submits that one of skill in the art would look no further than a single reference, in which case the combination of references would be made only with the benefit of hindsight.

Furthermore, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Nothing in the MATSUMOTO reference suggests that a polymer coating (for example, as taught by YILGÖR) would further enhance the properties of the fabric. YILGÖR, similarly, does not provide any specific teaching of the desirability of modifying a flame retardant fabric (such as that taught by MATSUMOTO) with a polymer coating, since YILGÖR's coatings may be imparted with flame retardant agents.

The only mentions of flame retardance in the YILGÖR reference are as part of extensive lists (Col. 4, line 64; Col. 5, lines 14-15; and Col. 6, line 10) of possible additives to the

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polymer coating layers described and claimed by YILGÖR. YILGÖR does not teach that their polymer coating layers specifically are flame retardant, but that they are useful in improving "on the art of water vapor-permeable, waterproof textile materials." Had flame retardance been a significant component of the YILGÖR invention, Applicant submits that flame retardant additives would have been included in the Examples and, possibly, the Claims.

MPEP 2143.03 states: "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)."

Even if the YILGÖR and MATSUMOTO references were combined as has been suggested, they fail to provide a teaching of all of the elements of Applicant's claims. Specifically, neither reference provides a teaching of a polymer finish comprised of two different urethane polymers, one of which has a high elongation (greater than 500%) and the other of which has a low elongation (less than 500%). Because the references do not teach urethane polymers of these types in combination with one another, the references also fail to teach or suggest the appropriate ratio of the high elongation urethane (the "first polymer" of Claim 21) to the low elongation urethane (the "second polymer" of Claim 21), which is essential in providing the desired property of stiffness.

The specification (page 7, lines 20-24) provides the following:

To provide the flame retardant fabric provided above with the desired hand (i.e., stiffness) and resistance to mark-off requires the use of a combination of a high elongation polymer and a low elongation polymer. A small amount of low elongation polymer blended with a higher percentage of high elongation polymer

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provides the flame retardant fabric with both the desired hand and resistance to mark-off.

Thus, the ratio of polymers to one another is important in obtaining the desired properties in the coated fabric product.

Finally, the Office has suggested that it would have been obvious at the time the invention was made to make the polymeric coating of YILGÖR transparent, so that the aesthetics were not adversely affected. Applicant submits that although it *might* have been obvious to make the coating transparent, it is not obvious *how* to make a coating transparent, when such coating comprises two polymers with different physical properties (i.e., elongation). The introduction of compounds, such as flame retardants, pigments (e.g., titanium dioxide), and pigments (e.g., carbon black), into the coating composition, as taught by YILGÖR (Col. 5, lines 9-20), contribute to Applicant's assertion that the YILGÖR coating is not transparent. As previously established, MATSUMOTO fails to teach a polymeric coating and, therefore, cannot be used to overcome this shortcoming in the YILGÖR reference.

Because there is no motivation in the references themselves to make the proposed modifications, and because the references, when combined, fail to teach all of the limitations of Applicant's claims, Applicant respectfully submits that no *prima facie* case of obviousness has been established.

For this reason, Applicant respectfully submits that the rejection is improper and requests that it be withdrawn.

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CONCLUSION

In view of all of the previous remarks, it is respectfully requested that the Request for Continued Examination be accepted and the above amendments and remarks be entered. Applicant respectfully submits that this application is now in condition for allowance. Entry of this Amendment and issuance of a Formal Notice of Allowance is courteously solicited.

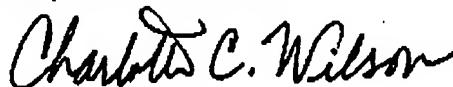
Should any issues remain after consideration of these Remarks, the Examiner is invited and encouraged to telephone the undersigned in the hope that any such issue may be resolved promptly and satisfactorily.

Applicant believes that this response is timely filed and, as such, that no extension of time fees are owed. In the event that there are additional fees associated with the submission of these papers (including extension of time fees), authorization is hereby provided to withdraw such fees from Deposit Account No. 04-0500.

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